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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/920,272	08/22/97	MILLER	F CIBT-P01-120

028120
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HM22/0830

EXAMINER

MURPHY, J

ART UNIT	PAPER NUMBER
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1646

DATE MAILED: 08/30/01 *LG*

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/920,272

Applicant(s)

MILLER ET AL.

Examiner

Joseph F Murphy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32,33,38,41-47 and 49-63 is/are pending in the application.
- 4a) Of the above claim(s) 61-63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32,33,38,41-47 and 49-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request For Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/11/2001 has been entered.

Formal Matters

Claims 32-33 were amended and new claims 50-56 were added in Paper No. 25, 7/12/2001. Claims 32-33, 38, 41-47, 49-63 are pending.

Election/Restrictions

Newly submitted claims 61-63 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 63 is directed to a method of conducting a business for isolating stem cells. The invention of claims 32-33, 38, 41-47, 49-60 is related to the invention of claims 61-63 as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the stem cells of claims 32-33, 38, 41-47, 49-60 can be used for production of neuronal cells.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution

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on the merits. Accordingly, claims 61-63 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 32-33, 38, 41-47, 49-60 are under consideration.

Response to Amendment

The rejection of claim 38 under 35 U.S.C. 102(a) as being anticipated by Sosnowski et al. (1995), in light of Fraichard et al. (1995) has been withdrawn.

The rejection of claim 33 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Mayo et al. (1992) in view of Kaufman et al. (1988), for reasons of record set forth in Paper No. 18, 12/06/1999 has been withdrawn.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 32-33, 38, 41-47, 49 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As written, claim 49 is directed to naturally occurring stem cells of a mammal, i.e. a product of nature. Amending the claim to encompass isolated cells that do not occur in nature would obviate this rejection.

Claim Rejections - 35 USC § 112 first paragraph

Claims 32-33, 38, 41-47, 49-63 are rejected under 35 U.S.C 112, first paragraph, because the specification, while being enabling for neuronal progenitor/precursor cells, does not reasonably provide enablement for stem cells. The specification does not enable any person

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skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with this claim.

Claims 32-33, 38, 41-47, 49-63 are overly broad in the recitation of "stem cells". There is insufficient guidance provided in the specification as to how one of ordinary skill in the art would generate stem cells, when the Specification provides methods for producing neuronal progenitor/precursor cells. The cells described in the Specification retained the ability to differentiate into neuronal cells, but there was no demonstration of the cells retaining the ability to differentiate into any other type of cell. See *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404. The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. The factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to: (1) the breadth of the claims; (2) the nature of the invention; (3) the state of the prior art; (4) the level of one of ordinary skill; (5) the level of predictability in the art; (6) the amount of direction provided by the inventor; (7) the existence of working examples; and (8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. Given the breadth of claims 32-33, 38, 41-47, 49-63 in light of the predictability of the art as determined by the number of working examples, the level of skill of the artisan, and the guidance provided in the instant specification and the prior art of record, it would require undue experimentation for one of ordinary skill in the art to make and use the claimed invention.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 49-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Avoli et al. (1994).

Avoli et al. teaches a method of measuring the spontaneous synchronous field potentials of negative polarity in the presence of 4-AP (page 657, Figure 1), using human brain slices. The brain slices (page 656, first column, third paragraph) can be considered purified cellular compositions, because they comprise many different types of cells, and are isolated from their in vivo milieu. These purified cellular compositions comprise cells that meet all the limitations set forth in claims 50-60, thus the claims are anticipated. Claim 49 is anticipated because the brain slices would contain stem cells and neuronal progenitor cells. Since claim 49 is a product by process claim, the claim is anticipated. Patentability of a product-by-process claim is determined by the novelty and nonobviousness of the claimed product itself without consideration of the process for making it which is recited in the claims. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Claims 32, 38, 43-47, 49, 53-57 and 59-60 are rejected under 35 U.S.C. 102(a) as being anticipated by Sosnowski et al. (1995) as evidenced by Bruckenstein et al. (1988).

The disclosure of Sosnowski et al. has been set forth in Paper No. 18, 12/06/99 and Paper No. 21, 1/3/2001. At issue is whether the cell composition disclosed by Sosnowski et al. comprises cells which inherently meet the limitations set forth in the indicated claims. The cells comprising the composition of Sosnowski et al. were isolated from peripheral tissue, i.e. olfactory epithelium, in a fashion similar to the cells claimed in the instant application. The cells in the composition taught by Sosnowski et al. differentiate to produce neuronal cells, as do the cells of the instant application. The cells in the composition of Sosnowski et al. can be transplanted into the CNS of a mammal, as can the cells of the instant application. The dispositive factor is therefore the tendency of the cells of the instant application to form non-adherent clusters, which, Applicant argues in Paper No. 25, 7/12/2001, distinguishes the claimed cells from the cells of Sosnowski et al. The cells in Sosnowski et al. are characterized as either "nests, individual flattened polygonal cells, or bipolar/fusiform neurons", furthermore, some of the cells form "aggregates" (page 45, second column, fourth paragraph). However, it is well known in the art that culturing cells under different conditions can affect the morphology of the cells. As evidence the Examiner cites Bruckenstein et al. which demonstrates that neurons can assume a variety of morphologies, dependent on culture conditions (page 332, first column, first

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paragraph to second column, first paragraph). Therefore, the cells taught in the Sosnowski et al. reference are inherently identical to the cells claimed. Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. Whether the rejection is based on "inherency" under 35 USC 102, on "prima facie obviousness" under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. In re Best, Bolton, and Shaw, 195 USPQ 430, 433 (CCPA 1977) citing In re Brown, 59 CCPA 1036, 459 F.2d 531, 173 USPQ 685 (1972)

The rejection of claim 33 and 49 under 35 U.S.C. 102(b) as being anticipated by Mayo et al. (1992) has been reinstated for reasons of record set forth in Paper No. 7, 10/15/1998. The Examiner regrets the inconvenience.

As discussed above, claim 49 is a product by process claim, and thus the patentability of the claim is determined by the novelty and nonobviousness of the claimed product itself without consideration of the process for making it which is recited in the claims. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). As the claim recites "A stem cell of a mammal" it is an inherent

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property of the tongue in vitro model system to contain stem cells. Tongue falls within the limitation of peripheral tissue, thus claim 33 is anticipated as well.

Claim Rejections - 35 USC § 103

Claims 41 and 42 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sosnowski et al (1995) in view of La Salle et al. (1993).

Applicant argues that the differences in the cells taught by Sosnowski et al. and the cells of the instant application make it impossible to draw experimental conclusions from experiments conducted by LaSalle et al. However, as discussed above, the cell compositions taught in Sosnowski et al. comprise cells which are identical to the cells claimed in the instant application, thus it would have been obvious to one skilled in the art at the time the invention was made to use the adenoviral vector for the transfection of the precursor cells isolated from olfactory epithelium with heterologous genes, including trophic factors.

Conclusion

No claim is allowed.

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Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph F. Murphy whose telephone number is 703-305-7245. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on 703-308-6564. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-308-0294 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.



Joseph F. Murphy, Ph. D.
Patent Examiner
Art Unit 1646
8/28/2001

Prema Mertz
PREMA MERTZ
PRIMARY EXAMINER